Sea-King Fully Stabilized Marine Satellite System

9762-SW

Installation and Operating Instructions

KING CONTROLS™

MEMBER NMEA

Satellite Solutions for Mobile Markets

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1350 REV M

IMPORTANT!

The satellite TV market is expanding and changing. The information in this manual was accurate at the time of printing. If your Sea-King System does not operate as outlined in this manual please call King Controls at (800) 982-9920 or visit our website at www.kingcontrols.com.

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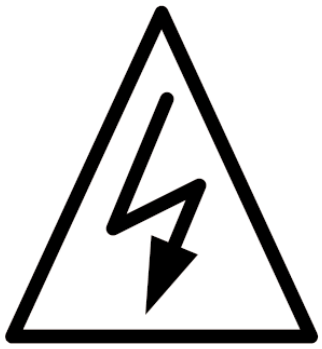
ELECTRICAL HAZARD WARNING!

The coaxial cable that connects the dome unit to the tuner carries a 24 volt electrical current. Exercise extreme caution when handling this cable. Do not cut, break, or splice this line. Do not insert or connect any devices such as splitters or any other device for any reason. This line is not compatible with any other equipment. Damage will occur to any device other than the dome unit if connected to the antenna port on the tuner.



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Dish Network® is an official trademark of Echostar Communications Corporation.
Bell ExpressVu® is an official trademark of Bell Canada.
DVB® is a trademark of the DVB Digital Video Broadcast Project (1991-1996)

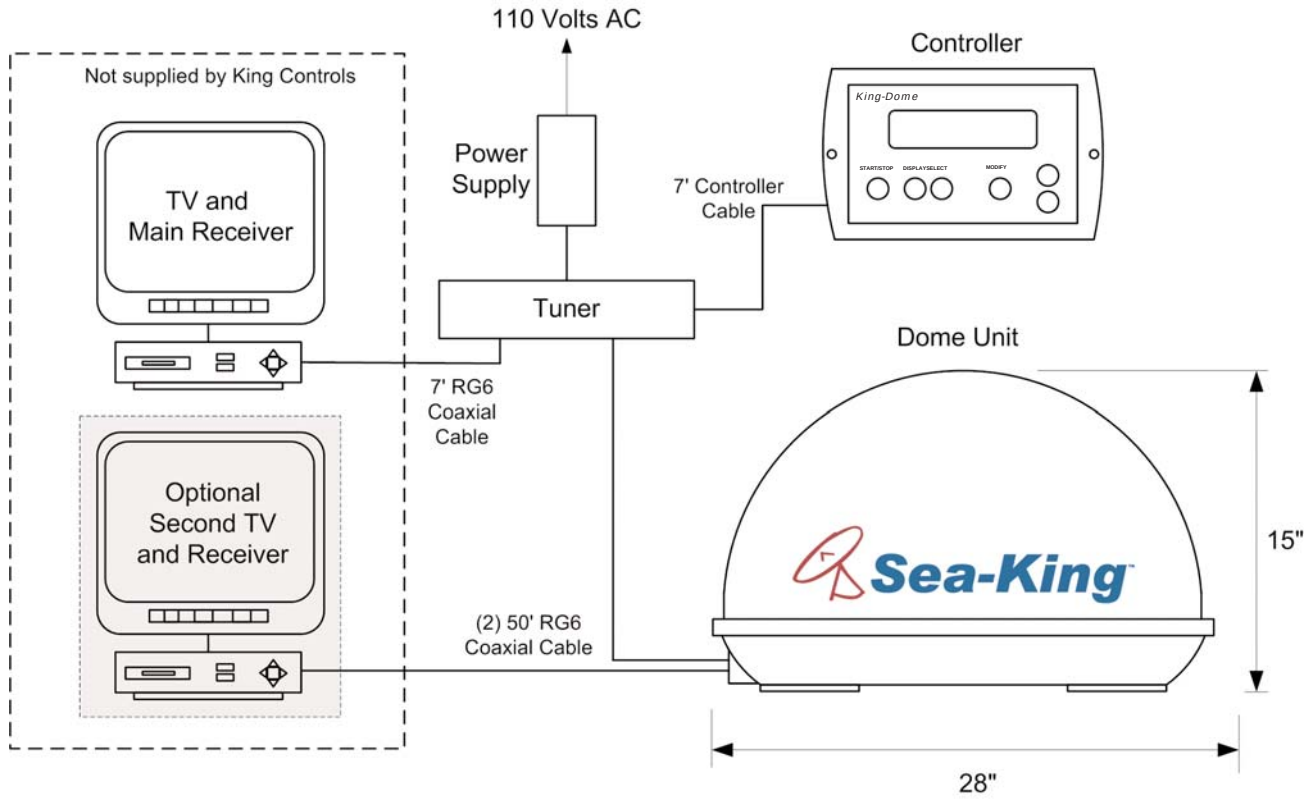
SECTION 1 INTRODUCTION

The Sea-King Fully Stabilized Marine Satellite System includes 4 main components **(Fig. 1)**.

Dome (Antenna) Unit	Mounted on the vessel. The dish is covered by a protective dome that keeps operational components free from the elements.
Controller	Located in the vessel. Used to activate and monitor the system, and access programming and diagnostic information.
Tuner	Located in the vessel. Decodes the satellite signal so the Sea-King locks onto and tracks the correct satellite.
Power Supply	Located in the vessel. Supplies proper operating voltage to the Sea-King.

Note: A TV, satellite receiver, and program subscription are also required for satellite TV viewing. (Not supplied by King Controls.)

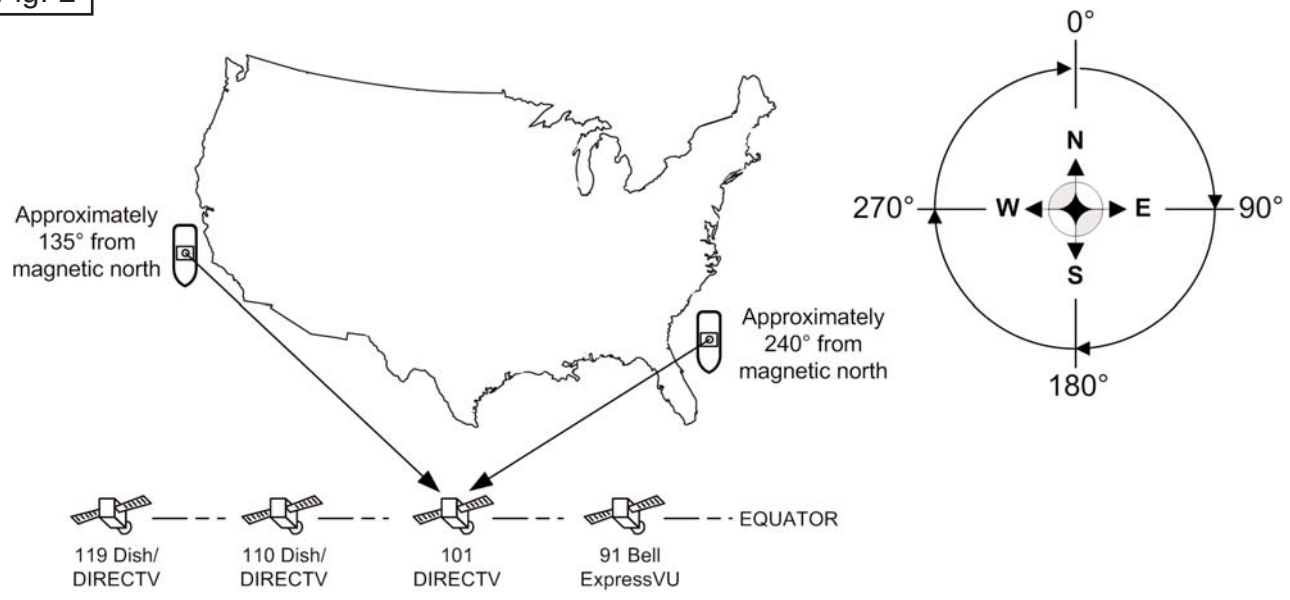
Fig. 1



SECTION 2 DEFINITION OF TERMS

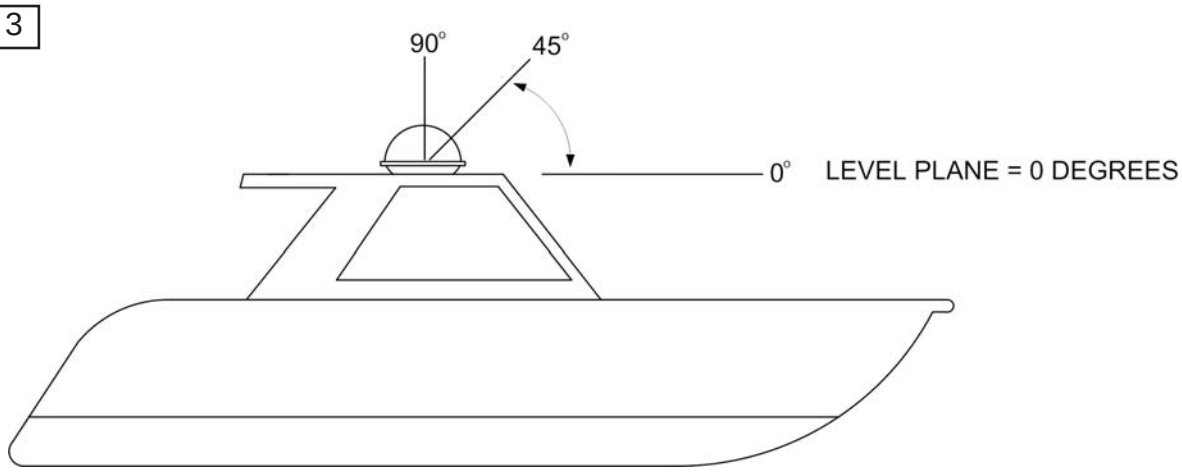
AZIMUTH: Angle in degrees measured clockwise from Magnetic North (0°) **(Fig. 2)**.

Fig. 2



ELEVATION: Angle in degrees measured from the ground plane **(Fig. 3)**.

Fig. 3



SIGNAL STRENGTH: Intensity of electronic signal received from the satellite transmission.

SECTION 3 INSTALLATION

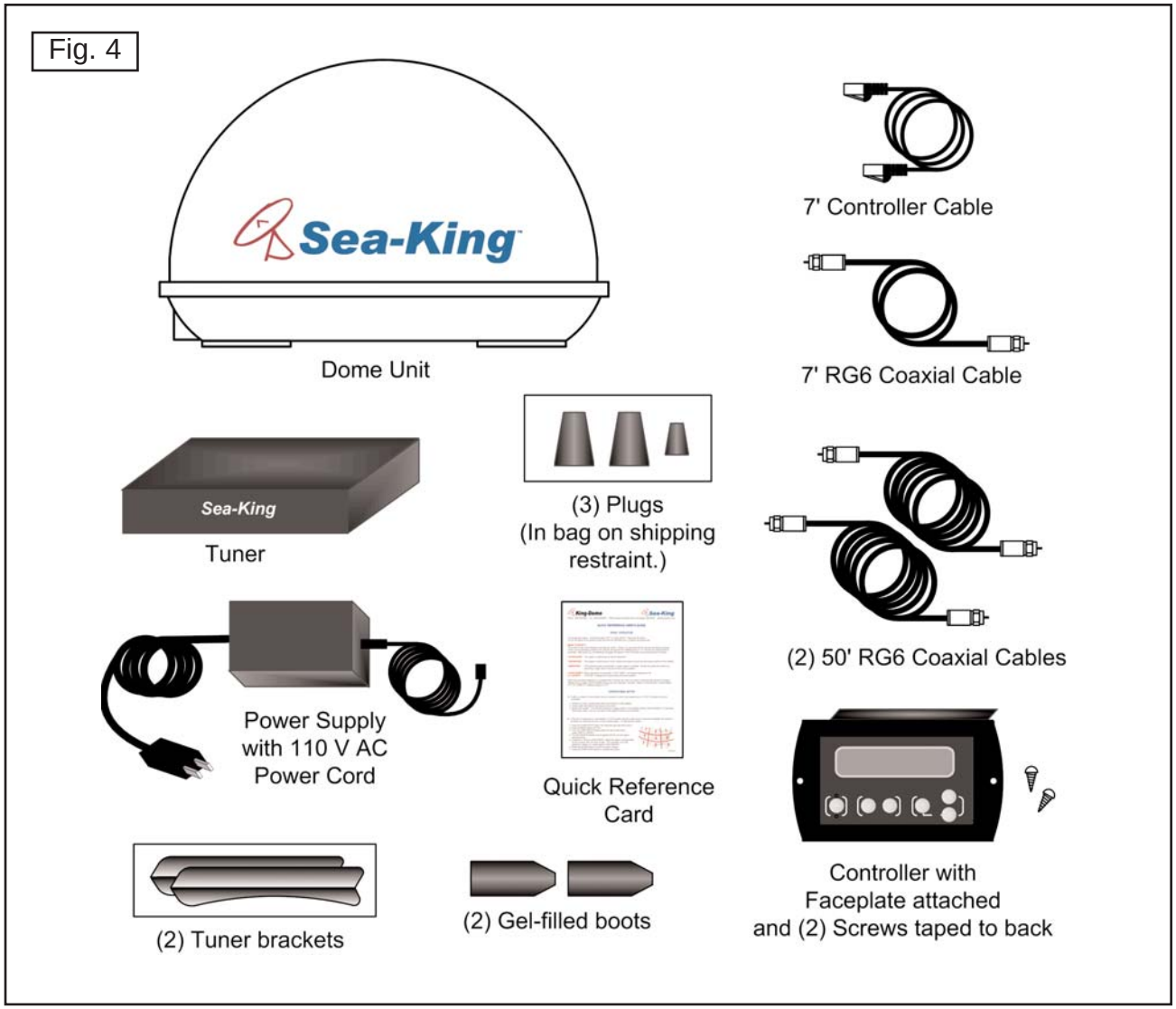
TOOLS AND MATERIALS REQUIRED:

- drill and drill bit set
- tape measure
- 7/16” open end wrench (coax connections)
- adhesive sealant (compatible with vessel material)
- appropriate fasteners to install all components and wiring
- 5/32” allen wrench, channel lock or pliers (to remove shipping bolts)
- wire cutter (to remove shipping tie strap)

KIT CONTENTS:

1. Unpack and identify all components **(Fig. 4)**.

Fig. 4



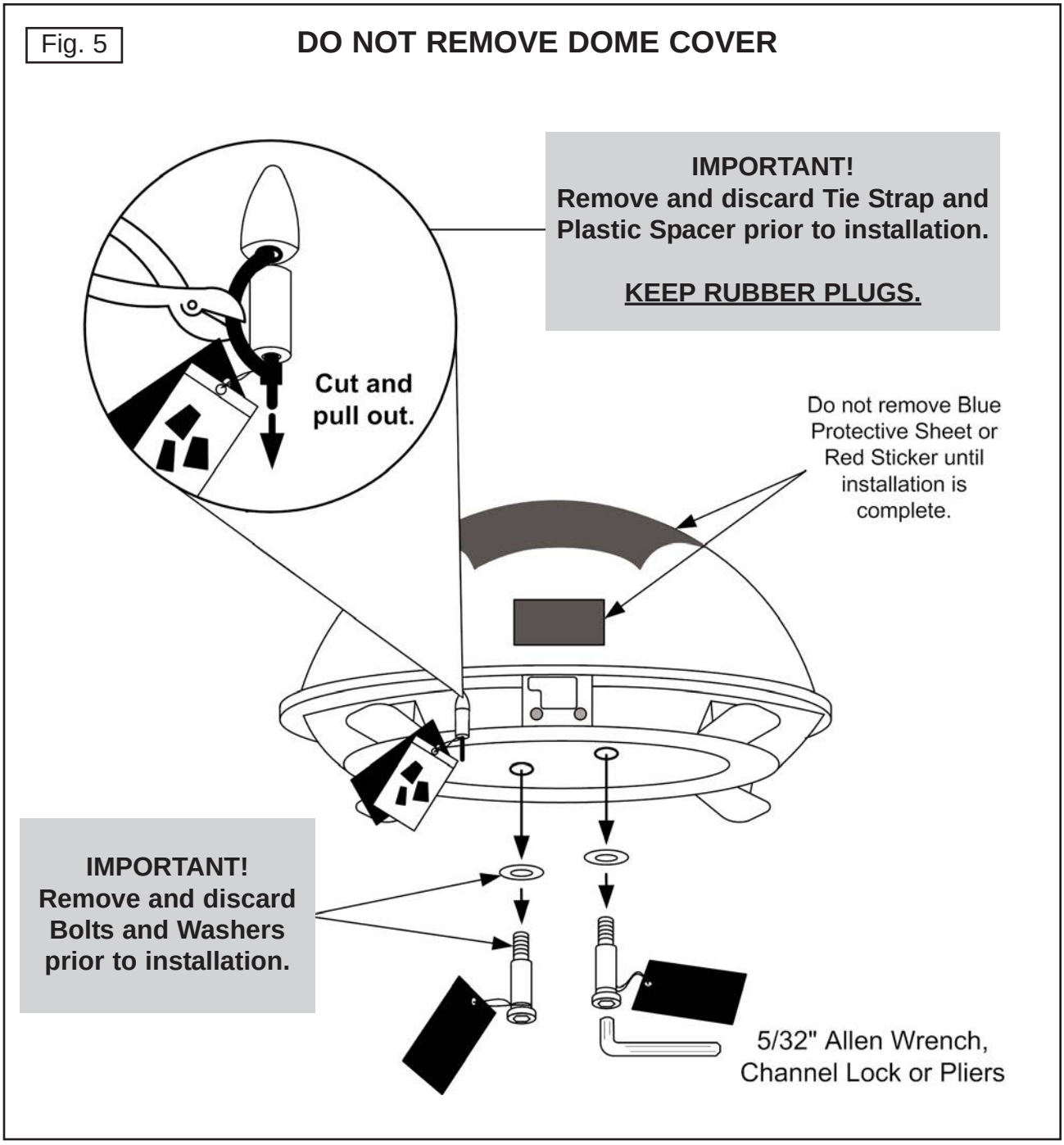
IMPORTANT! The tie strap and spacer, and the bolts and washers must be removed from the bottom of the dome unit prior to installation. DO NOT REMOVE THE DOME COVER TO REMOVE THESE SHIPPING RESTRAINTS.

YOU MUST PLUG THE SHIPPING RESTRAINT HOLE AND TWO SHIPPING BOLT HOLES WITH THE SUPPLIED PLUGS. (ATTACHED TO TIE STRAP SHIPPING RESTRAINT.)

2. Remove and discard the tie strap and spacer **(KEEP RUBBER PLUGS)**, and the two bolts and washers that pass through the bottom of the base **(Fig. 5)**.

Fig. 5

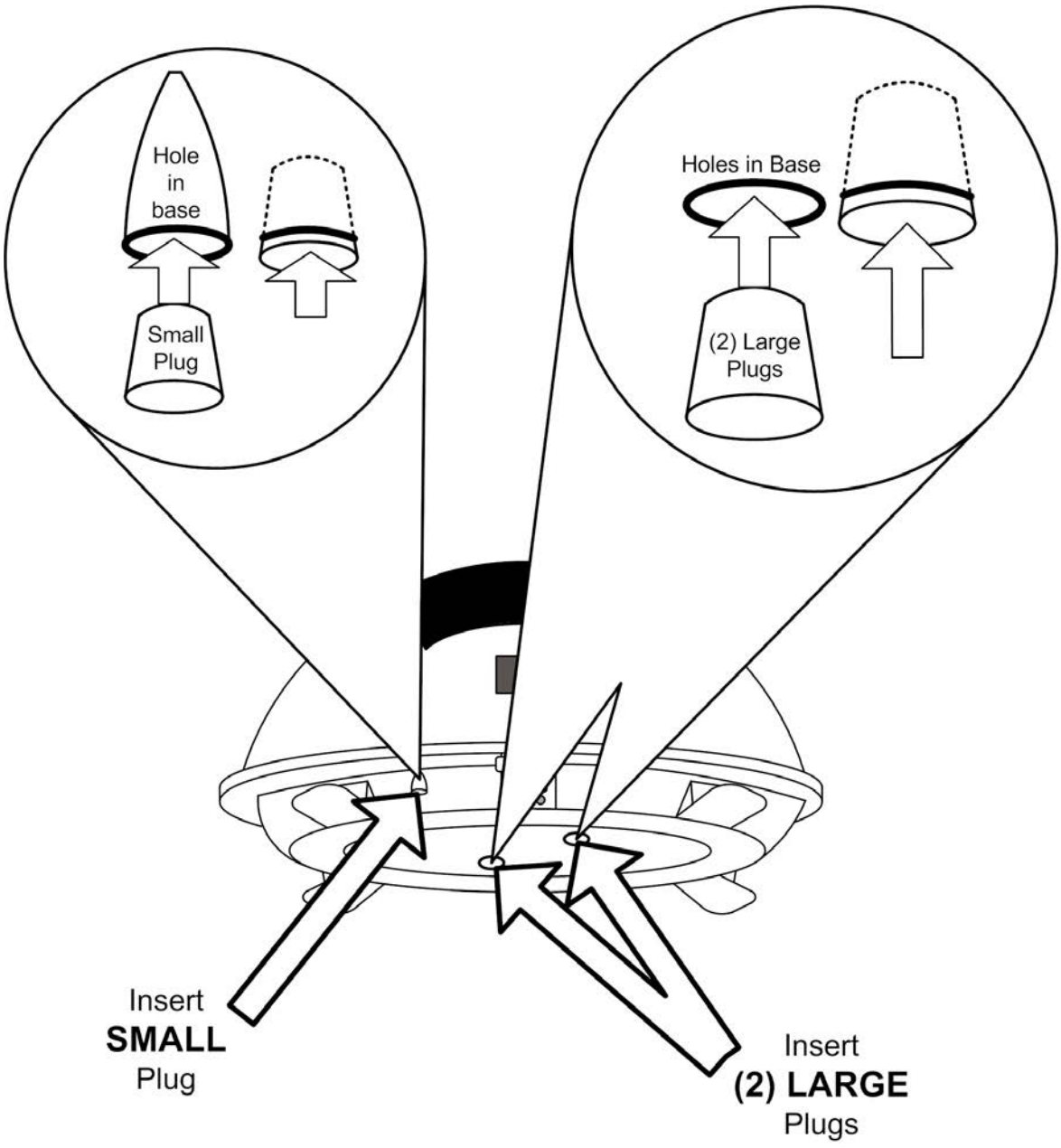
DO NOT REMOVE DOME COVER



3. Insert provided plugs into holes that were occupied by tie strap and shipping bolts. Inserted plugs should be flush with base **(Fig. 6)**.

Fig. 6

IMPORTANT!
After removing shipping restraints, firmly insert plugs into appropriate holes. Plugs should be flush with base.



DOME LOCATION

1. Select an area on the vessel for the dome unit, and the location where the coax cables will enter the vessel through the surface to the satellite receiver and internal components. Use the following criteria:

    a) The shortest distance between the dome unit and the main satellite receiver is most desirable.

    b) The dome unit requires either: 1) a 28 inch diameter ***FLAT*** area on the vessel surface for mounting with the attached feet or 2) an industry standard mount (call King Controls for more information).

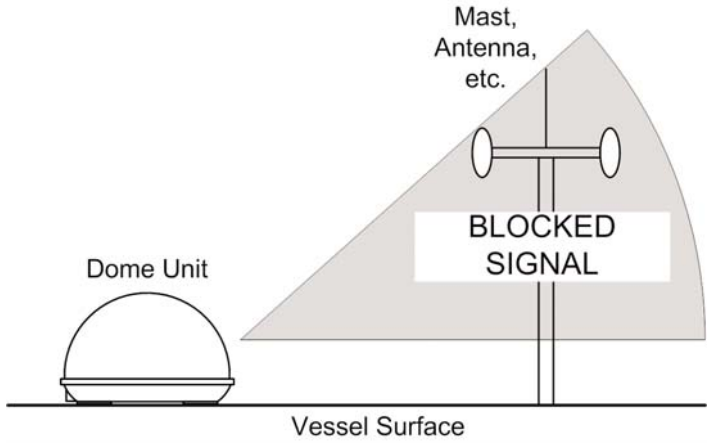
IMPORTANT! Mounting area must be *FLAT*. Base of Sea-King must not flex or deform when attached to vessel surface or unit will not operate properly.

    c) The dome unit should never be mounted so that it is tilted more than two degrees in any direction.

    d) Keep the dome unit as far away from the radar as possible.

    e) There must be no “line of sight” obstructions from this location. Items such as masts or radar antennas that are too close to the dome unit may prevent the satellite signal from reaching the dish **(Fig. 7)**.

Fig. 7



IMPORTANT! Make sure shipping restraints are removed from bottom of dome unit (Fig. 5, Page 5).

2. Place the dome unit in the selected area.

COMPONENT LOCATION:

1. Select the location of the internal components using the following criteria:

   a) The Controller, Tuner, and Power Supply should be in the same general vicinity of the main satellite receiver, **AND ACCESSIBLE FOR OPERATION AND MAINTENANCE PURPOSES.**

   b) The Tuner should not be stacked directly on top of other electronics. If located in a cabinet or other enclosure, make sure there is adequate ventilation around the unit. (If using the Tuner mounting brackets see page 17.)

   c) The Controller should be conveniently located for the end user. (If using the Wall Mount Faceplate, see page 16.)

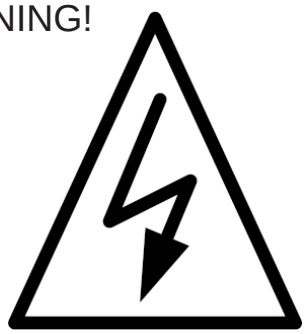
   d) All components should be secured so they do not shift or bounce around during vessel motion.

2. Place the components in the selected areas.

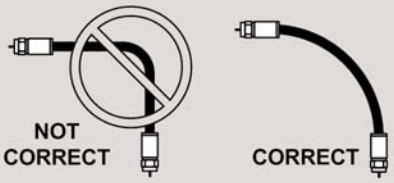
SYSTEM LOCATION CHECK

ELECTRICAL HAZARD WARNING!

The coaxial cable that connects the dome unit to the tuner carries a 24 volt electrical current. Exercise extreme caution when handling this cable. Do not cut, break, or splice this line. Do not insert or connect any devices such as splitters or any other device for any reason. This line is not compatible with any other equipment. Damage will occur to any device other than the dome unit if connected to the antenna port on the tuner.



AVOID SHARP BENDS WHEN ROUTING COAX!



To verify proper operation of the components in their selected locations, perform a System Location check as follows:

1. ***TEMPORARILY*** connect system as outlined in **Fig. 10, Page 13**.

2. Verify system operates properly as described in **Section 4 OPERATION, Page 18**.

3. After verifying proper operation of the system, disconnect all components.

DOME INSTALLATION AND EXTERNAL WIRING

IMPORTANT! **<u>USE ONLY THE COAXIAL CABLES SUPPLIED WITH THE SEA-KING. DO NOT CUT COAX. COIL AND STORE EXCESS CABLE IN THE CABINET WITH THE COMPONENTS</u>.**

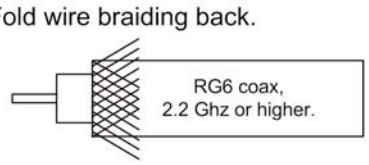
If coaxial cable other than that supplied with the Sea-King is used, the following guide lines must be followed:

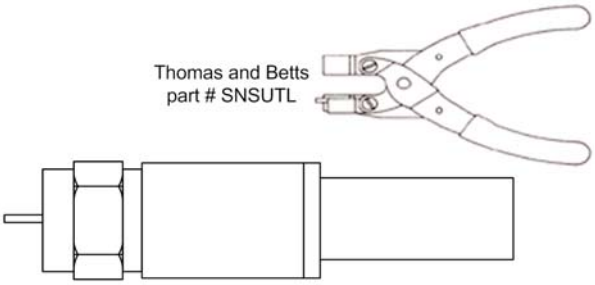
1) **Ends must be terminated with SNAP-N-SEAL® connectors or F-compression style connectors as shown in Fig. 8. <u>(DO NOT USE TWIST-ON CONNECTORS.)</u>**

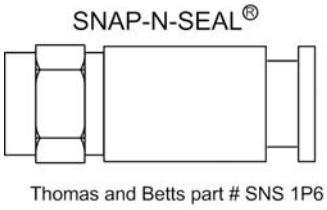
2) **Cable must be RG6, rated at 2.2 Ghz or higher.**

Fig. 8

IMPORTANT!
Use factory recommended stripper only.

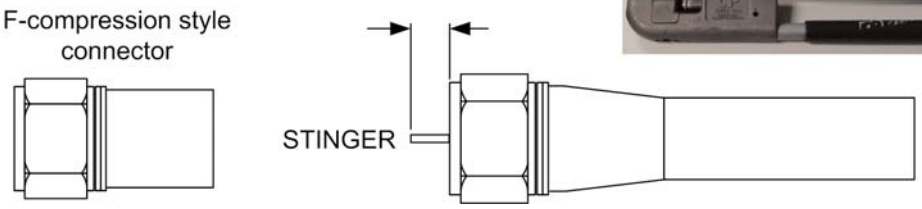






IMPORTANT!
Rubber O-rings must be *<u>REMOVED</u>* from ends of all SNAP-N-SEAL® connectors and F-compression style connectors.

IMPORTANT!
COMPRESSION STYLE CRIMPER ONLY!
(Do not use hex style.)



Note: The installer is responsible for determining the most appropriate fastener to secure the dome unit to the vessel surface. Depending on the surface material, fasteners such as lag screws, well nuts, sheet metal screws, toggle bolts and T anchors may be used, and should always be used in combination with a surface compatible adhesive sealant.

IMPORTANT! The installer is responsible for weatherproofing all holes with sealant.

IMPORTANT! Make sure power supply is disconnected from 110 volt source before continuing with permanent installation.

Make sure shipping restraints are removed from bottom of dome unit, and plugs inserted in appropriate holes (Fig. 5, Page 5 and Fig. 6, Page 6).

Cable connection must <u>ALWAYS</u> be positioned facing the rear of vessel.

DO NOT USE THE FOUR SEALED BEARING HOLES IN THE BOTTOM OF THE DOME UNIT FOR MOUNTING.

1. Mount the dome unit. Use the pre-drilled holes in the mounting feet as a guide to install the fasteners into the vessel surface. Use additional fasteners whenever necessary.

2. Test that the dome unit is secure by pulling upward from each foot location.

Note: The King-Dome is wired for a dual LNB. There are two coaxial ports on the back of the dome unit. The one labeled “MAIN” must be connected to the Tuner (IDB) in vessel. The one labeled “AUX” can be used for an additional receiver (see page 15).

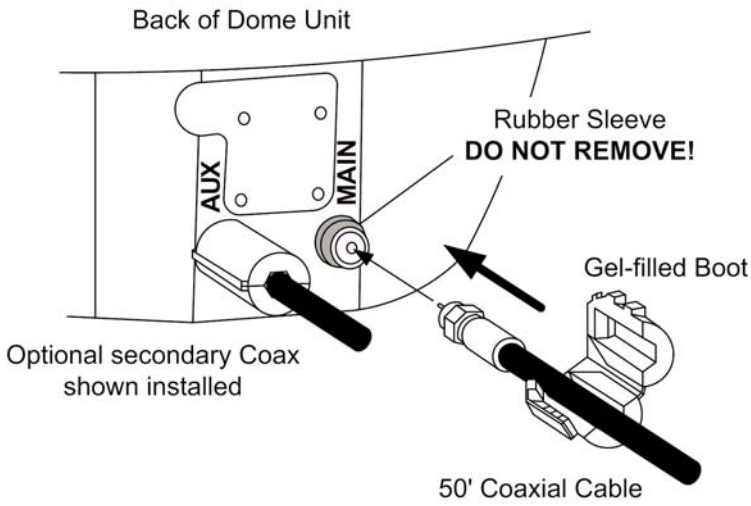
Apply non-conductive electrolytic grease to all stingers (coax cable center conductors) before installation.

IMPORTANT! Do not remove the rubber sleeve from the coax port. The coax cable end will slide inside the sleeve as it is tightened.

3. Connect 50’ coax cable to the coax port labeled MAIN on the back of the dome unit and tighten connection. If using a second receiver, connect second 50’ coax cable to coax port labeled AUX and tighten connection. **DO NOT OVER TIGHTEN CONNECTIONS. (Fig. 9)**.

4. Snap the gel-filled boot(s) around the coax cable(s), then push flush against the rubber sleeve(s) on the coax port(s) **(Fig. 9)**.

Fig. 9

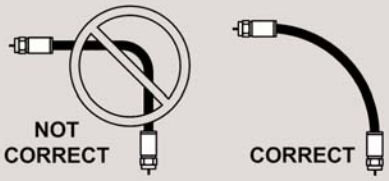


IMPORTANT!
Coax connection will slide inside rubber sleeve.

Coax connection should be snug.
DO NOT OVER TIGHTEN!

Gel-filled boot must sit flush against rubber sleeve.

AVOID SHARP BENDS WHEN ROUTING COAX!



5. Run coax cable(s) from the dome unit to the location where coax will enter the vessel. Secure coax every 12-18 inches.

6. Drill 3/4” hole into the vessel where the tuner will be located. Feed coax cables(s) down through hole. Seal opening with compatible sealant so that it is entirely waterproof (inside and outside of the 3/4” hole).

7. Remove blue protective sheet and red “position to rear” sticker from the dome unit.

ELECTRICAL HAZARD WARNING!

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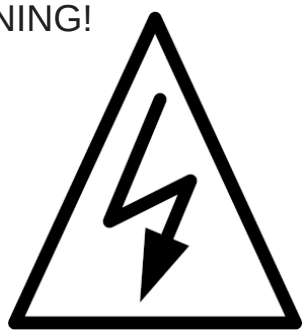


INTERNAL WIRING (Fig. 10)

IMPORTANT! The 50' coax from the "MAIN" port on the dome unit MUST be connected to the Tuner (IDB) in the vessel.

Coax connections should be snug. DO NOT OVER TIGHTEN.

Note. Apply non-conductive electrolytic grease to all stingers before installation.

1. Connect the 50' coax cable from "MAIN" on dome unit to the tuner port labeled "ANT."
2. Connect the 7' coax from the tuner port labeled "REC" to the main satellite receiver port labeled "SATELLITE IN."
3. Connect the 7' controller cable from the controller to the tuner port labeled "IDD."
4. If installing a second receiver, connect the 50' coax cable from "AUX" on dome unit to the "SATELLITE IN" port on the second receiver.

Note: Make sure the proper connections are made between the receivers and TVs.

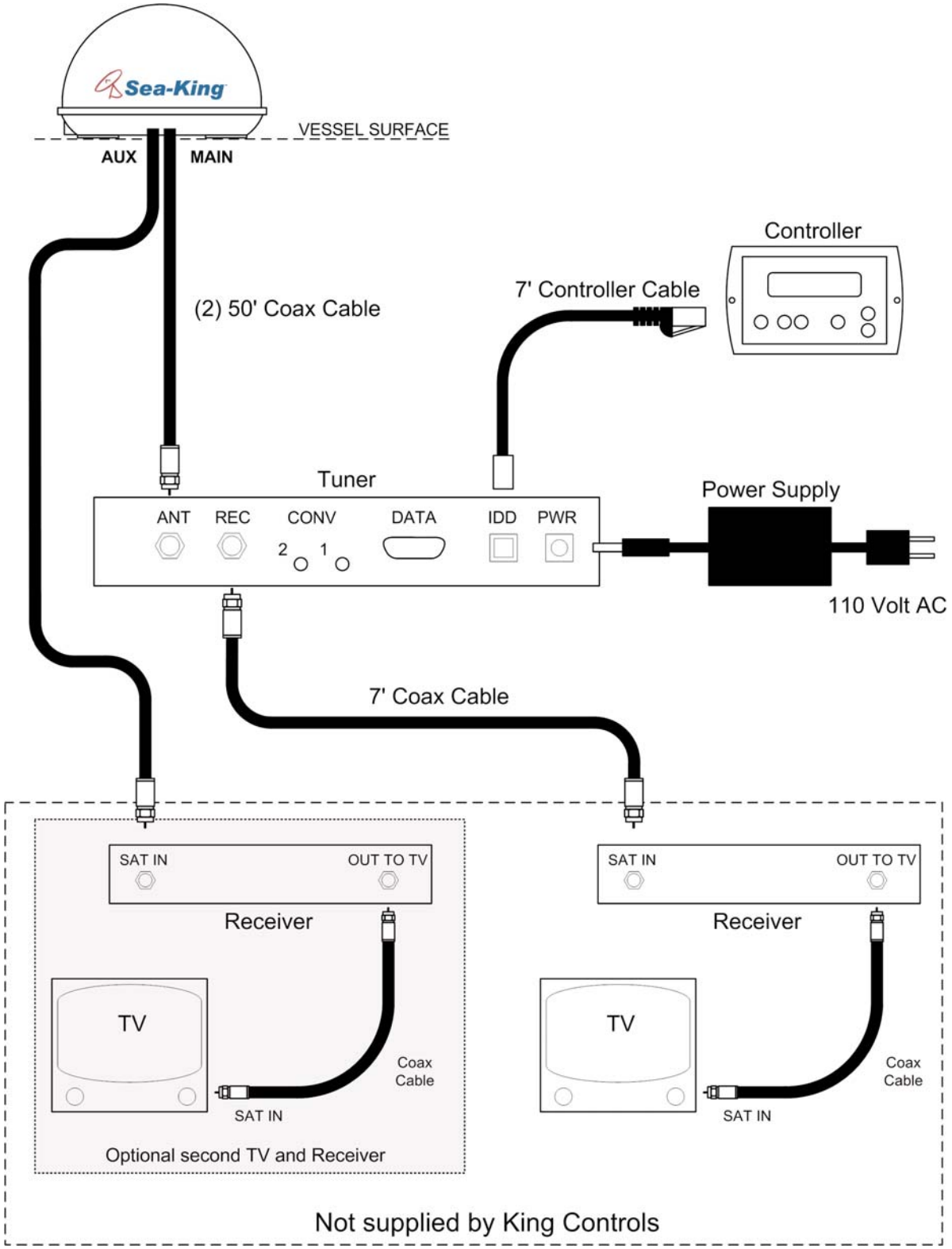
IMPORTANT! When connecting the power supply cable to the tuner, push in the power supply cable end until it is flush against the back of the tuner.

5. Connect the power supply cable to the tuner port labeled "PWR".
6. Plug the power supply into a 110 VAC source.

Note: The controller should turn on for 3 seconds and then turn off. If the controller stays on, press the ENTER and "-" button simultaneously for 3 seconds to turn unit off.

Fig. 10

9762-SW INTERNAL WIRING



IMPORTANT! AVOID SHARP BENDS WHEN ROUTING COAX.

MULTIPLE SATELLITE RECEIVER CONFIGURATIONS

With the use of an active multi-switch (not supplied by King Controls), more than two TV's and receivers can be hooked up (see **Fig. 11** for typical 4 receiver hookup).

Other options:

3-4 satellite receivers: use one 2x4 or 3x4 active multi-switch

8 satellite receivers: use one 2x8 or 3x8 active multi-switch

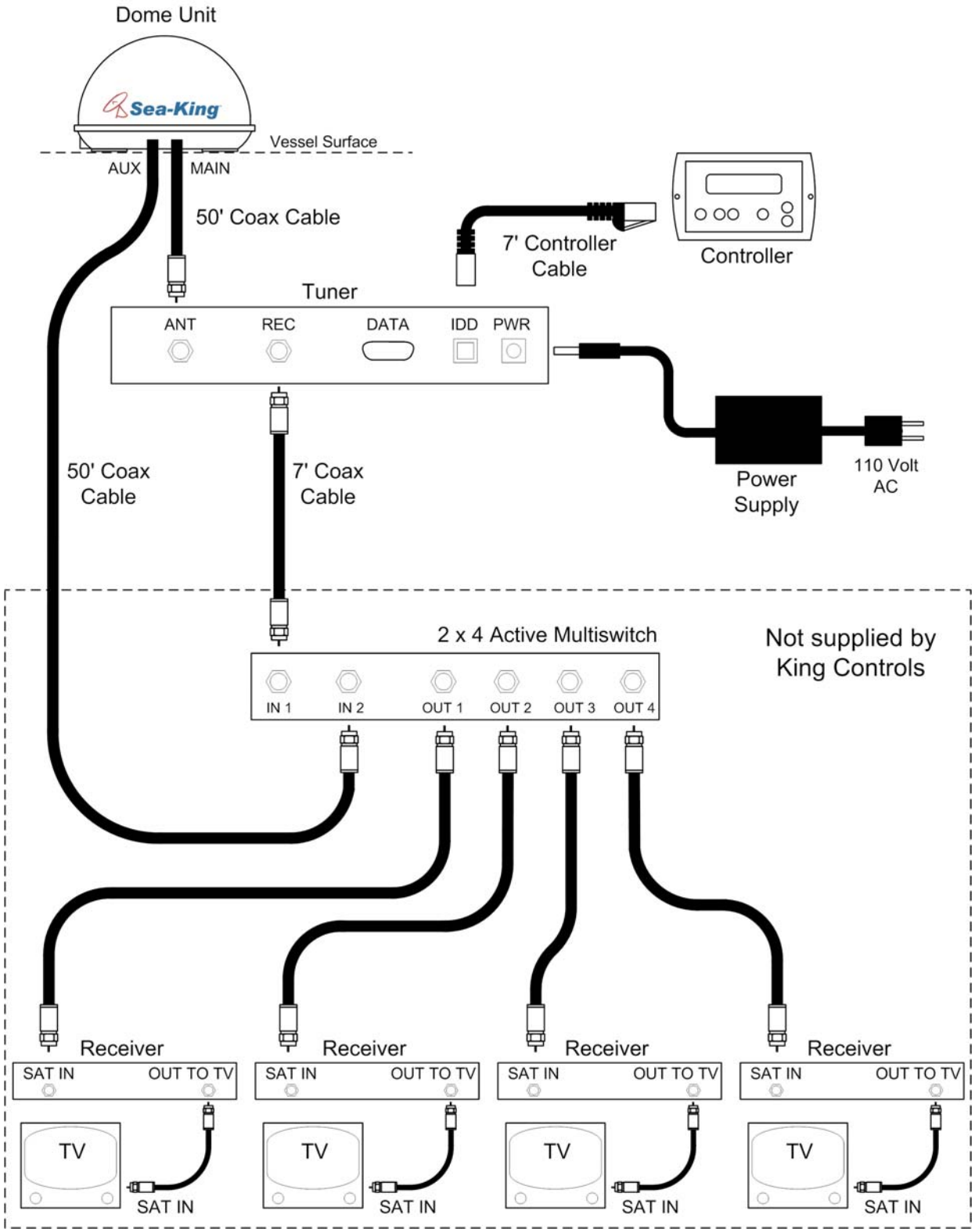
16 satellite receivers: use one 3x16 active multi-switch

King Controls recommends the use of an active multi-switch.
Recommended brands (other brands may work as well):

Channel Master
Eagle Aspen
Perfect Vision
Spaun
Terk

Fig. 11

TYPICAL 4 RECEIVER HOOKUP



IMPORTANT! AVOID SHARP BENDS WHEN ROUTING COAX.

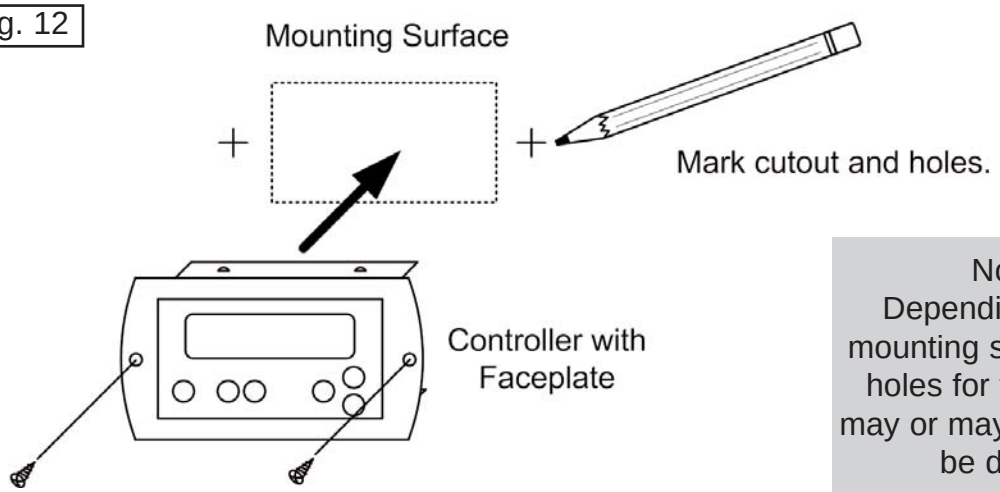
WALL MOUNT FACEPLATE

Note: If not using the Faceplate, see Faceplate removal instructions below.

1. Use the Faceplate as a guide to mark and cut out the mounting cavity, and if necessary, mark and drill the mounting holes **(Fig. 12)**.

2. Mount Faceplate in wall with supplied screws.

Fig. 12



Note:
Depending on the mounting surface, pilot holes for the screws may or may not need to be drilled.

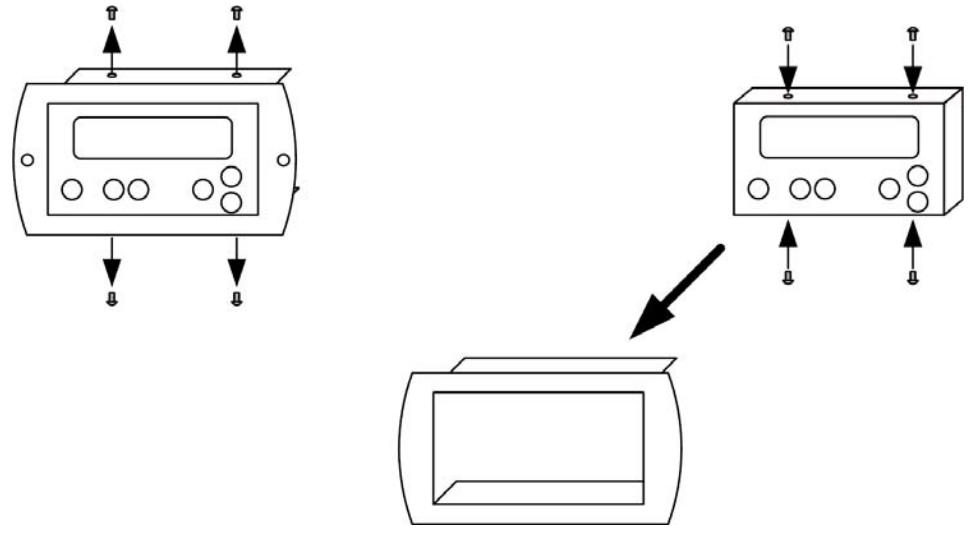
The Faceplate is optional and can be removed as follows: **(Fig. 13)**

1. Remove 4 screws from Controller.

2. Slide Faceplate off Controller.

3. Replace 4 screws.

Fig. 13

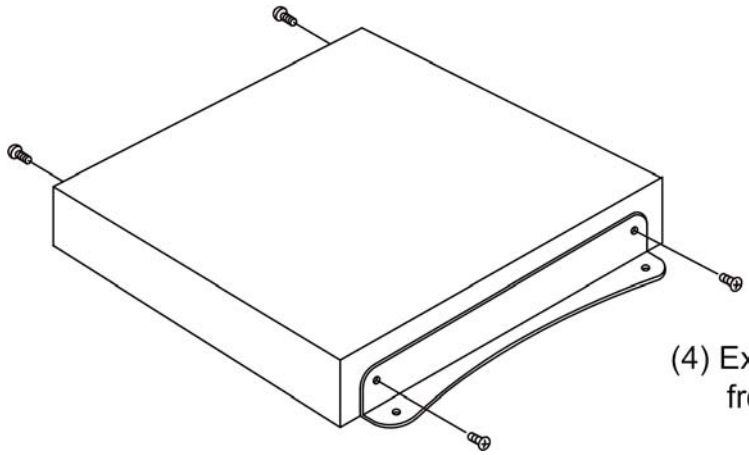


OPTIONAL TUNER MOUNTING BRACKETS (INCLUDED)

1. Remove 4 screws from the tuner.

2. Fasten mounting brackets to tuner with same screws **(Fig. 14)**.

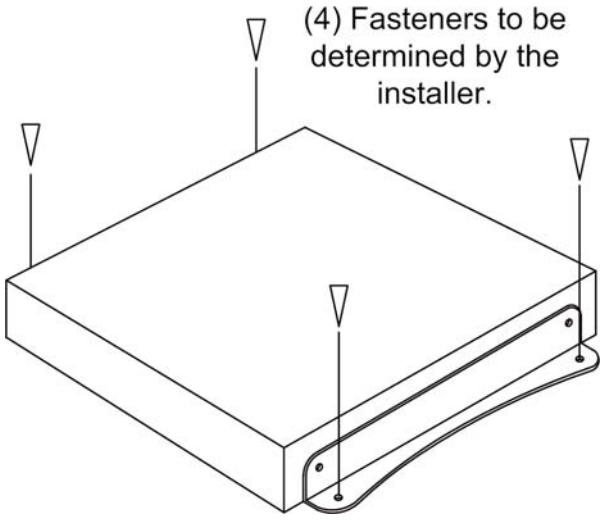
Fig. 14



Note: The installer is responsible for determining the most appropriate fasteners to secure the mounting brackets to the chosen surface.

3. Mount tuner in previously chosen location **(Fig 15)**.

Fig. 15



Note:
Depending on the mounting surface, pilot holes for the fasteners may or may not need to be drilled.

SECTION 4 OPERATION

IMPORTANT! There must be a clear "line of sight" to the satellite (See Fig. 2, Page 3). Terrain, other boats, buildings, trees, masts, telephone poles, etc. can all block the satellite signal from reaching the dish.

Note: This example is for the DTV 101 satellite in Region 2-North Central. The information on your controller will vary depending on the satellite and region you have chosen.

1. Turn on TV and satellite receiver. "Searching for Satellite Signal" or similar should appear on TV.

2. Press ON

Unit powers up, performs a self-diagnostic and loads software.

POWER UP
PLEASE WAIT

IDB2 VER 1.x

Unit begins searching for the selected satellite.

RUN: SCAN ALIGN
NOW on? ⟹

RUN: SCAN ALIGN
2-NORTH CENTRAL

RUN: SCAN ALIGN
DTV 101

Unit has locked onto the selected satellite.

RUN: LOCKED S XX
NOW on 101 ⟹

RUN: LOCKED S XX
2-NORTH CENTRAL

RUN: LOCKED S XX
DTV 101

Note: The Sea-King must remain powered on to maintain a signal. If you are going to be stationary and wish to continue watching TV, **DO NOT TURN THE SYSTEM OFF**.

Note: To reduce satellite acquisition time, you can set your current region.

SET REGION (OPTIONAL)

1. Press **ON** — Unit goes into IDLE/HOLD mode.

IDLE/HOLD SXX
NOW on 101 ⟹

2. Press **MAIN** — Unit goes into USER SETUP menu.

USER SETUP ⟹
Rev xxxx sn xxxxx

3. Press → — Unit goes into SET REGION menu.

SET REGION
▮▮▮▮▮▮▮▮

4. Press **+** or **-** — Find your location on the map below and determine which region you are in. Use the plus and minus buttons to display your region on the controller.

Display your region on the controller.

5. Press **ENTER** — Sets REGION into memory.

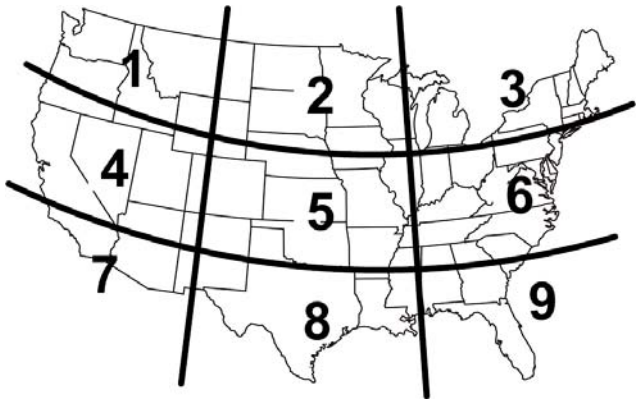
IDLE/HOLD SXX
NOW on 101 ⟹

6. Press **ON** — Unit searches based on new REGION.

RUN: SCAN ALIGN
DTV 101

REGION OPTIONS:

1	NORTH WEST
2	NORTH CENTRAL
3	NORTH EAST
4	CENTRAL WEST
5	MIDDLE CENTRAL
6	CENTRAL EAST
7	SOUTH WEST
8	SOUTH CENTRAL
9	SOUTH EAST
	ALL REGIONS
0	RECALIBRATE



SET SATELLITE SERVICE

SATELLITE OPTIONS

DTV 101	DIRECTV at 101 West Longitude
EXPVU 82	Bell ExpressVu at 82
Dish 148	Dish Network at 148
EXPVU 91	Bell ExpressVu at 91
Dish 61	Dish Network at 61
DTV 101/119	DIRECTV at 101 and 119
DTV 101/110 HD	DIRECTV at 101 and 110 (High Definition)
SAT 119	Dish Network at 119
SAT 110	Dish Network at 110

Note: The King Controls HD TV Converter Box (#9747 or #9747-AM) is required to receive HD programming from the DIRECTV satellite at 110 W.

1. Press → Unit goes into SET SATELLITE menu.

SET SATELLITE
▮▮▮▮▮▮▮▮

2. Press + or - Use the plus and minus buttons to display your selected satellite on the controller.

Display selected satellite on controller.

3. Press ENTER Sets satellite in memory. Unit moves to new selected satellite.

RUN: SWITCHING

RUN: LOCKED
Displays selected satellite

Note: **For DIRECTV Subscribers:** The satellite setting allows the user to select the satellite and service provider of choice. For DIRECTV subscribers, the Sea-King can also track a secondary or alternate satellite.

Example: If you are a subscriber to the DIRECTV service most of the programming that you will be watching will be transmitted from the satellite located at 101 degrees. You may also subscribe to programming that is transmitted from another satellite located at 119 degrees. In order to receive programming from both satellites you can either select an individual (DTV 101) satellite manually from the display or you can select a multiple (DTV 101/119) satellite setup. The multiple satellite selection will automatically switch between satellites (DTV 101/119) based on the channel or programming that you select on the Satellite Receiver (multi-satellite capable receiver is required). Please keep in mind that the programming may pause (freeze frame) or pixelate while the antenna acquires and locks onto the new satellite.

The multiple satellite setting will work only if your satellite receiver is set up to work in oval dish mode. Consult your satellite receiver manual for instructions.

It is not recommended to use the DTV 101/119 setting unless there is programming on the DTV 119 satellite that you specifically subscribe to.

For DISH NETWORK Subscribers: Use the procedure on the previous page to switch between the 110 and 119 satellites.

SECTION 5 TROUBLESHOOTING

SYMPTOM	POSSIBLE SOLUTION
Controller does not power up.	Check: tuner is connected to power supply. controller is connected to tuner. power supply is plugged into 110 VAC outlet.
Controller remains in "Power Up, Please Wait" condition.	Disconnect power supply for 15 seconds, then reconnect. Verify voltage on coax at dome unit is 24 volts. Inspect rotary joint cable, then reseat (inside dome unit). Inspect all coax cables and verify connections are snug but not overly tight (inside and outside dome unit).
Controller displays "Load Error."	Disconnect power supply for 15 seconds, then reconnect. Inspect rotary joint cable, then reseat (inside dome unit).
Controller displays "AZ FAULT." Dish cannot rotate.	Verify shipping bolts are removed (see pages 5 and 6). Disconnect power supply for 15 seconds, then reconnect. Perform **Mechanical Calibration** (page 26). Perform **OPTION 21 RE-INITIALIZE and 0-RECALIBRATE** (pages 24-25). Reseat ribbon cables (inside dome unit).
Display reads "EL FAULT."	Make sure shipping tie strap is removed (see pages 5 and 6). Disconnect power supply for 15 seconds, then reconnect. Perform **Mechanical Calibration** (page 26). Restart system. If problem persists, perform **OPTION 21 RE-INITIALIZE and 0-RECALIBRATE** (pages 24-25). Reseat ribbon cables inside dome unit.

SYMPTOM	POSSIBLE SOLUTION
Only getting signal on 1/2 of transponders.	Kinked or sharply bent coax cable. Verify coax cables are tightly crimped with **F-COMPRESSION** style crimps only. Verify receiver is operating properly. Verify LNB type is set correctly.
Unit never locks on or locks on and drifts off of satellite.	Atmospheric moisture. Unit will lock on as weather improves. Check for obstruction in sky in direction of satellite. Select another satellite and verify unit locks on. Verify coax cables are tightly crimped with **F-COMPRESSION** style crimps only. Perform **OPTION 21 RE-INITIALIZE and 0-RECALIBRATE** (pages 24-25). Perform **Temperature Calibration**. Call King Controls (800) 982-9920. Inspect all coax cables and verify connections are snug but not overly tight (inside and outside dome unit).

OPTION 21 RE-INITIALIZE and 0-RECALIBRATE

1. Press (MAIN) as needed to enter DEALER SETUP menu.

DEALER SETUP ⟹
CODE 0

2. Press (+) as needed to scroll up to CODE 13.

DEALER SETUP ⟹
CODE 13

Press (ENTER)

3. Press (→) as needed to enter SET OPTION menu.

SET OPTION
OPTION 0

4. Press (-) as needed to scroll down to OPTION 21.

SET OPTION
OPTION 21

Press (ENTER) to re-initialize software.

LOADING
PLEASE WAIT

5. Wait until display shows OPTION 0.
(May take up to 30 seconds.)

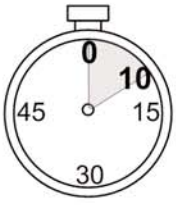
SET OPTION
OPTION 0

Press (ENTER) and (-) simultaneously to shut system off.

off

6. Disconnect power (110 volt power supply) from tuner for 10 seconds, then reconnect.

WAIT 10 SECONDS!



7. Wait until controller shows “off” then press (ON) to start system.

off

8. Wait for system to load.

When display shows RUN: SCAN ALIGN,

press ON to enter IDLE/HOLD mode.

9. Press MAIN to enter USER SETUP menu.

10. Press → to enter SET REGION menu.

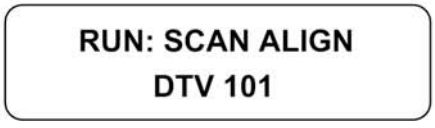
11. Press + or - as needed to display 0-RECALIBRATE.

12. Press ENTER System recalibrates gyros.

13. Press ON to exit IDLE/HOLD mode.

System will continue to run during recalibration process. Recalibration is complete when 0-RECALIBRATE no longer scrolls across bottom of display with search information. May take up to 10 minutes.

14. System continues to run after recalibration is complete.



MECHANICAL CALIBRATION

IMPORTANT! You must call King Controls before performing this procedure.

IMPORTANT! The Sea-King must remain perfectly still during the mechanical calibration.

The Sea-King must be running (NOT IN IDLE/HOLD).

1. Press MAIN as needed to enter DEALER SETUP menu.

DEALER SETUP ==>
Code 0

2. Press + as needed to scroll up to Code 13.
   Press ENTER

DEALER SETUP ==>
Code 13

3. Press → as needed to display SET TEST-NONE

SET TEST
NONE

4. Press - as needed to display MECH CAL.
   Press ENTER Display now shows Cancel.

SET TEST
MECH CAL

SET TEST
Cancel
MECH CAL

5. Press + as needed to display Run now.
   Press ENTER Calibration begins.

SET TEST
Run now
MECH CAL

State cannot be 00. → MECH CAL RUN
St xx

6. When finished (about 20 minutes) controller will show OPERATION DONE.

OPERATION DONE

7. Press - and ENTER simultaneously to shut system off.

off

8. Wait 10 seconds.

Press ON Calibration is complete.

SECTION 6 MAINTENANCE

The Sea-King Satellite System has been designed to be maintenance and trouble free.

For optimum signal strength, keep the dome clean from dirt, bugs, and other debris. Periodic washing of the dome with mild soap and water is recommended.

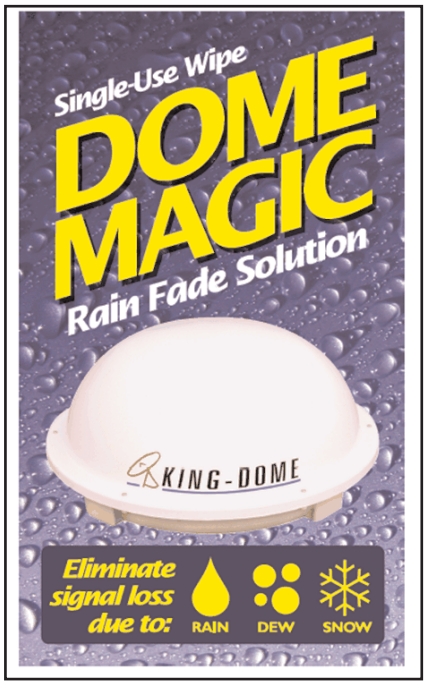
If you plan on storing your vessel for long periods of time, it is recommended that the system be put through a search procedure on a quarterly basis to keep all moving parts in good working order.

If you have any comments or questions, please contact the King Controls Service Department at (800) 982-9920, or email King Controls at info@kingcontrols.com

Rain Fade

Rain or dew on the dome can cause signal interference and make the digital picture freeze, pixel or go out altogether. This loss of signal is commonly referred to as “rain fade” and is caused by the combination of water in the atmosphere and water on the dome surface.

To minimize this issue and eliminate the effects of water on the dome, apply King Controls’ ***Dome Magic***® rain fade solution to the dome. This will prevent water from sticking to the dome surface and blocking the signal. For additional details on ***Dome Magic***® rain fade solution please contact your authorized King-Dome dealer or call King Controls at (800) 982-9920.



Single Application Packet #1830-SP

Spray Can #1830

SECTION 7 LIMITED WARRANTY

Every King Controls Satellite System is thoroughly inspected and tested before leaving the factory. It is covered by a two year parts and one year labor limited warranty from the date of original purchase. This warranty does not cover installation and external wiring or refurbished units.

Should any trouble develop during the warranty period, contact King Controls or one of its certified dealers. Only King Controls and certified dealers are authorized to perform warranty evaluations and repairs.

If it is determined that the unit needs to be returned, return COMPLETE product, freight prepaid, to : **King Controls, 11200 Hampshire Ave. S, Bloomington, MN 55438-2453**. If inspection shows the trouble is caused by defective workmanship or material, King Controls will repair (or at its option, replace) without charge.

This warranty does not apply where:

- The product has been abused, misused, improperly installed or improperly maintained.
- Repairs have been made or attempted by others that are not certified by King Controls to do such repairs.
- Repairs are required because of normal wear and tear.
- Alterations have been made to the product

In no event shall King Controls be liable for any indirect, incidental, or consequential damages from the sale or use of the product. This disclaimer applies both during and after the term of the warranty.

King Controls disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose," after the one year term of this warranty.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

11200 Hampshire Avenue South, Bloomington, MN 55438-2453
Phone: (800) 982-9920 Fax: (952) 922-8424

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